REMARKS

Claims 19-27 are now pending in the application. Claims 1-18 were rejected under 35 U.S.C. § 102(b) as being anticipated by Herz (U.S. Pat. No. 6,029,195). As will be highlighted below, new claims, based on the original claims 1-18, are now presented for the Examiner's consideration. The original claims 1-18 have been cancelled without prejudice. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the new claims and remarks contained herein.

DISCUSSION OF THE CLAIMS

As noted above, claims 1-18 have been cancelled and new claims 19-27 are presented herewith for consideration. To aid the Examiner in reviewing the new claims, Applicants present below a listing showing the corresponding relationships between pre-and post-amended claims:

New Claim	Feature	Relationship to Original Claim
Claim 19	The number of clusters	an independent claim based on the original claim 3
Claim 20	Cluster term label	an independent claim further limiting the original claim 5
Claim 21	Cluster sentence label	an independent claim further limiting the original claim 6
Claim 22	Limitation of the cluster sentence label means	a new claim

Claim 23	Document label	an independent claim based on the original claim 7
Claim 24	Limitation of the document label to a sentence	a dependent claim corresponding to the original claim 8
Claim 25	Limitation of the document label means	a new claim
Claim 26	Question and answer system	an independent claim based on the original claim 9
Claim 27	Upgrade of corresponding relationships between Q&A	a dependent claim corresponding to the original claim 11

FURTHER COMMENTS

1. Claim 19

The information retrieval system recited in claim 19 classifies a plurality of documents, which are targeted at retrieval, into a plurality of clusters, retrieving a document satisfying a retrieval condition input by the user, and presents the retrieved document together with the rest of documents included in a cluster to which the retrieved document belongs, as retrieval results. As illustrated in Fig. 3 and described in page 8, lines 3-20 of the specification, in the presented retrieval results, the documents having similar contents are presented in a block, and as a result, the user can easily grasp the retrieval results.

The description from page 11, line 5 to page 13, line 6 shows a clustering method

in the embodiments of the present invention. In addition, referring to the attached supplemental figures, more detail explanation will be set forth below. The supplemental Fig. 1 schematically illustrates a process of clustering described in the embodiments of the present invention. In an initial state of the process of clustering, each of the documents is regarded as a cluster. Next, the clusters having a similar feature amount are integrated so as to reduce one cluster. Again, the clusters having a similar feature amount are integrated so as to reduce one more cluster. The same process is repeated so as to finally obtain one large cluster including all the documents as an element. The aforesaid process is an example, and the clusters may be integrated in another way.

In the clustering process, as the number of integration of the clusters increases by one, the number of the clusters reduces by one. On the other hand, the number of clusters having two or more elements of the clusters increases in such a way of zero in the initial state, one after the first integration, and two after the second integration, but changes into a declining trend at a point and at last decreases to one.

The supplemental Fig. 2 schematically illustrates a relationship between the number of integration of the clusters and the number of the cluster having two or more elements. In the supplemental Fig. 2, the horizontal axis denotes the number of the integration of the clusters and the vertical axis denotes the number of the clusters having two or more elements. The number of the integration of the clusters m and the number of the clusters (n-m) were adopted, at which the number of the clusters having two or more elements was the largest.

In determining the number of the clusters, note that too large number of the clusters causes the similar documents to belong to different clusters. On the contrary,

too small number of the clusters causes the dissimilar documents to be in the same cluster. The inventors concluded through the experiments that when the number of the clusters is determined such that the number of the clusters having two or more elements of the clusters is at the largest, the documents having appropriate similarity belong to the same cluster, and as a result the retrieval results can be easily grasped.

On the other hand, in Herz (USP 6,029,195), a hierarchical clustering is a menu for navigating the user (see Fig. 7). The supplemental Fig. 3 schematically illustrates distinctions between the present invention and the invention disclosed in Herz. According to a method disclosed in Herz, the clustering is repeated until each of the documents is finally integrated to one cluster. Thus, the appropriate number of the clusters is not determined, which is distinguished from the present invention. Moreover, a depth of the hierarchical menu is a distance before reaching the targeted document. Thus, the larger the number of the documents is, the much unavailable the system becomes.

2. Claim 20

The information retrieval system recited in claim 20 classifies a plurality of documents, which are targeted at retrieval, into a plurality of clusters, prepares a term label for each of the clusters, retrieves a document satisfying a retrieval condition input by the user, and presents the retrieved document together with the label of the cluster to which the retrieved document belongs and the rest of documents belonging to the cluster, as retrieval results. An example of the presented retrieval results is shown in Fig. 3 of the present application. In Fig. 3, the term label of the cluster is

"Confectionery, snack, cheese" at the upper portion at "Cluster label" column. The documents having similar contents are presented in a block, and the term label is provided thereto. Thus, the user can easily grasp the retrieval results.

The description from page 14, line 4 to page 15, line 4 shows a method for preparing a cluster term label disclosed in the embodiments of the present invention. In addition, referring to the attached supplemental figure, more detail explanation will be set forth below. The supplemental Fig. 4 illustrates an example in preparing the term label in the embodiments of the present invention. First, Documents 1 through 3 are classified into one cluster by the clustering means. Next, term scores of each of the terms included in the documents are calculated. Herein, only nouns are regarded as a term. Next, terms having high term scores, e.g., two, are selected as a label. Note that the terms which appear most commonly in the documents are selected as a label. The inventors concluded through the experiments that according to the method, the retrieval results can be easily grasped.

On the other hand, Herz discloses that the terms having large TF/IDF score are selected as a label (see column 71, lines 47-53). According to the method, in the supplemental Fig. 4, when the term, "alligator" has low appearance frequency (large IDF score) in all the documents, TF/IDF score increases due to the constant TF score. As a result, although the term, "alligator" appears in only one sentence in the cluster, the term is selected as a label. It is inappropriate to prepare a label for a term which does not appear commonly in the cluster.

3. Claim 21

The information retrieval system recited in claim 21 classifies a plurality of documents, which are targeted at retrieval, into a plurality of clusters, prepares a sentence label for each of the clusters, retrieves a document satisfying a retrieval condition input by the user, and presents the retrieved document together with the label of the cluster to which the document belongs and the rest of documents belonging to the cluster. An example of the presented retrieval results is shown in Fig. 3 of the present application. In Fig. 3, the sentence label of the cluster is "Watery food (jelly, pudding, yogurt)..." at the lower portion at "Cluster label" column. The documents having similar contents are presented in a block, and the sentence label is provided thereto. Thus, the user can easily grasp the retrieval results.

The description from page 15, line 14 to page 16, line 15 shows a method for preparing a cluster sentence label disclosed in the embodiments of the present invention. In addition, referring to the attached supplemental figure, more detail explanation will be set forth below. The supplemental Fig. 5 illustrates an example in preparing the sentence label in the embodiments of the present invention. First, Documents 1 through 3 are classified into one cluster by the clustering means. Next, term scores of each of the terms included in the documents are calculated. Herein, only nouns are regarded as a term. Next, the sum of the term scores of the terms included in the sentence is calculated for each of the sentences of the documents belonging to the cluster. The sentence having the largest sum is selected as a label. Note that the sentence including many terms which appear most commonly in the document

belonging to the cluster is selected as a label. The inventors concluded through the experiments that according to the method, the retrieval results can be easily grasped.

On the other hand, Herz discloses that with numeric attributes, the cluster's average value for that attribute is selected as a label of the cluster; with short textual attributes, the textual attributes vale is selected; and with longer textual attributes, the term is selected. However, Herz fails to disclose that a sentence is selected as a label.

4. Claim 23

The information retrieval system recited in claim 23 classifies a plurality of documents, which are targeted at retrieval, into a plurality of clusters, prepares a sentence label for each of the clusters, prepares a document label representing the contents of the documents, retrieves a document satisfying a retrieval condition input by the user, and presents the retrieved document together with the label of the cluster to which the retrieved document belongs, the rest of documents belonging to the cluster, and the document labels, which are associated with each of the retrieved document and the rest of documents, as retrieval results. An example of the presented retrieval results is shown in Fig. 3 of the present application. In Fig. 3, the document label is the underlined portion in each of the documents at "Document" column. The documents having similar contents are presented in a block, and the label is provided thereto. Moreover, portions characterizing the document are underlined for each of the documents belonging to the cluster. As a result, the user can easily grasp the retrieval results. The inventors emphasized that not only a cluster label but also a document label representing the contents of the documents belonging to the cluster is presented.

The determination of the document label is described from page 17, line 4 to page 18, line 7 of the specification.

On the other hand, Herz discloses providing a label to the cluster, but not a document label of the cluster.

5. Claim 26

The information retrieval system recited in claim 26 classifies a plurality of answer documents into a plurality of clusters, retrieves a question document satisfying a retrieval condition input by the user, presents the retrieved question document and the answer document, which is associated therewith, together with the rest of answer documents in the cluster to which the answer document belongs, as retrieval results.

The information retrieval system is described in the second embodiment of the present invention (see Figs. 14-22). In addition, referring to the attached supplemental Fig. 6, more detail explanation will be set forth below. In the supplemental Fig. 6, for example, the user desires the answer document No. 1, and retrieves the question document No. 3. The answer document No. 2 associated with the question document No. 3 is obtained, and the answer document No. 1, which belongs to the same cluster as the answer document No. 2, is presented as retrieval results. As a result, the desired answer document is obtained.

In other words, by clustering the answer documents having similar contents to the clusters, the desired answer document can be obtained due to the similarity as retrieval results even when the desired answer document is not associated with the retrieved question document. Thus, the association of the question document with the

answer document is reduced so as to present an appropriate answer document to various question documents, which are input by the user, and as a result the user can easily grasp. In the present invention, one answer is associated with a plurality of questions, not one question (see page 21, lines 4-17 of the specification).

On the other hand, Herz discloses an example of an application for retrieving documents with a pair of a question and an answer, wherein one question is associated with one answer.

6. Claim 27

The information retrieval system recited in claim 27 receives selection of an answer by the user among the plurality of answer documents in the cluster presented as the retrieval results, and newly stores the question and the answer documents with being associated each other in the document storage means. As a result, when the same user question is input at the next time, the newly stored answer document can be retrieved as the retrieval results.

On the other hand, Herz discloses the hierarchical menu of the clustering is changed in accordance with the feedback by the user. However, Herz fails to disclose upgrading the document itself stored in the document storage means.

CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is

believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

Dated: _Mar 19, 2004_

By: _____
Gregory A. Stobbs
Reg. No. 28,764

HARNESS, DICKEY & PIERCE, P.L.C.
P.O. Box 828
Bloomfield Hills, Michigan 48303
(248) 641-1600
GAS/kk